



Hamilton Form Company, Ltd

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Installation and Anchoring Long-Line, Vessel Type Forms

The following guidelines should be referenced when installing and anchoring long line forms. Each form and every plant has its own unique features, making it impossible to address every detail in one set of installation instructions.

If you have questions regarding the installation for your specific form, please refer to the notes on the form drawings or contact Hamilton Form Company to discuss.



DANGER

IMPROPER USE OF A FORM CAN RESULT IN DESTRUCTION OF THE FORM, SERIOUS PERSONAL INJURY, OR DEATH.

- **If not properly installed, use of this form can be very dangerous and can result in destruction of the form, possible serious personal injury or death.**
 - **This form can be very dangerous if improperly stressed. Improper stressing can result in destruction of the form, possible serious personal injury or death.**
 - **NEVER exceed the stressing limit of your form. Use of this form to withstand prestressed force other than that recommended by Hamilton Form Company; can result in destruction of the form, possible serious personal injury or death. Refer to your form drawings for the stressing limit of your form.**
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1. Inspect your form for damages before unloading from the delivery vehicle. Check packing list to make sure delivery is complete.
2. An I.D. Plate with Job Number is welded to each section of the form.
3. Sections are matched and marked when the form is built. Male/female connectors guide sections together. Refer to the schedule included with the form drawings for the layout sequence.
4. Prepare the area where the form will be installed, making sure it is clean and level. Any beams or anchor plates required should be installed. Refer to the form drawings for the longitudinal and transverse support points required for your form.

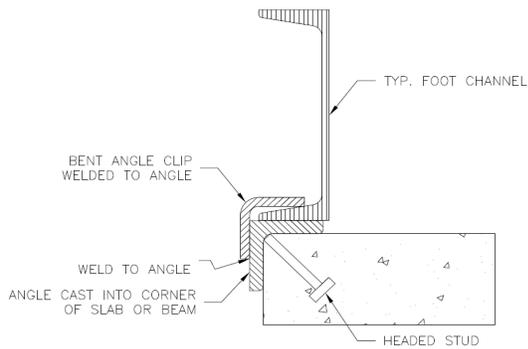


5. If the form is being installed outside, the orientation of the form should be taken into consideration. Long-line forms should be installed east and west whenever possible. When a form is installed north and south, the side of the form facing the morning sun usually expands more than the side that is shaded. As a result, some temperature related expansion problems are likely to occur. We have noticed that this problem is even more noticeable at higher elevations and when snow is present on the shaded side of the form.
6. Move form sections according to the layout to the designated area of the plant using the marked lifting locations located on each section. Always use these locations when lifting sections.
7. The form must be installed straight and in a flat plane with no more than +/- 1/16th inch variation.
8. Most producers install their forms level, however some producers have installed forms with a slight slope from end-to-end to allow for drainage.
9. Do not use the outer edge of the form for alignment. You will notice that the edges of forms frequently have structural angles or channels for added stiffness. These structural steel shapes can have mill tolerances that are too large to make them acceptable to use as a line of reference to align a form.
10. On all forms, alignment should always be taken from your most critical point such as the top edge, inside skin or centerline skin seam.
11. In aligning a double tee form, the centerline skin seam at the centerline of the form is the most true reference line.
12. Your form was built level from the casting surface. Due to steel tolerances, the bottom understructure may vary in height. Therefore, the form must be shimmed level or in a plane, using the casting surface as reference for final shimming.
13. After the form is leveled and in place, check the level again and shim as necessary. Shim packs should be accurately "shot in" for proper elevation and double checked from the skin surface. If the form is not installed in a flat plane, castings will not be square, stripping may be difficult and damage to the product and the form may occur.
14. After final leveling, pull all joints tight together. There are a number of ways to pull the joints together, be sure that as you pull the joints together, the form remains straight and level or on a plane.
15. Anchor the center of the form. A long-line form should be permanently anchored at the center 5 or 10 feet. This forces the movement of the form due to stressing and from expansion and contraction due to temperature changes to each end of the form. It also and splits the movement in half.
16. The remainder of the form must be clipped down to provide resistance to uplift forces and maintain alignment while allowing the form to expand and contract longitudinally. Most forms should be shimmed and clipped down on 5-foot centers.

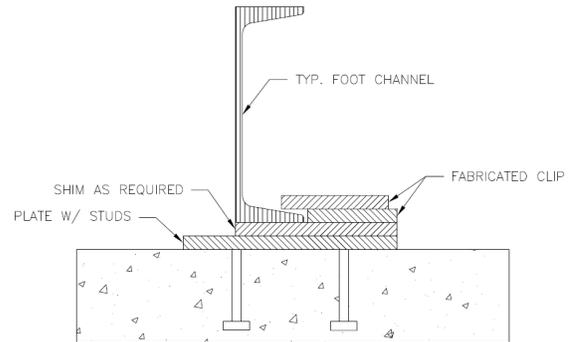


17. For self stressing forms, we recommend that the clips be on 30" centers for the end 10 feet of the bed.
18. There are several ways that forms can be clipped down. Remember, the ability of the form to move as it expands and contracts is very important. Periodic inspections and maintenance of the anchoring details is required to assure that the form is performing properly. (See sketches at the end of this document for examples)
19. If the form is not allowed to expand and contract it can buckle and/or open at the joints so that the form is not straight. When this happens, stripping becomes difficult and the form and product may become damaged.
20. Install lap plates to mechanically connect the form together. Lap plates are typically welded on the outside structure of the form (longitudinal members) at the top and bottom. Self stressing forms should be partially prestressed before the final lap plates are installed.
21. Before the first pour you may want to oil and heat the form to season the casting surface. Never leave the casting surface unprotected from the elements. Rust forms very quickly on steel surfaces.

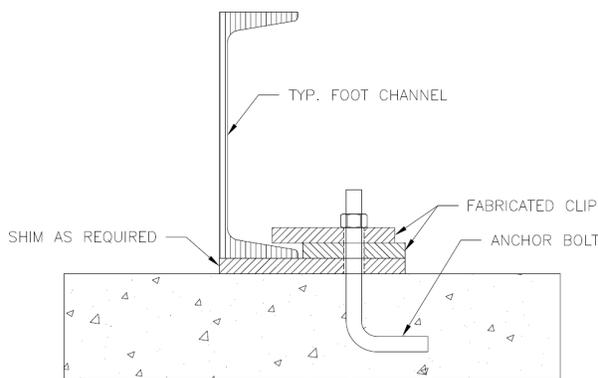
CLIP DOWN EXAMPLES: (As referenced in #16)



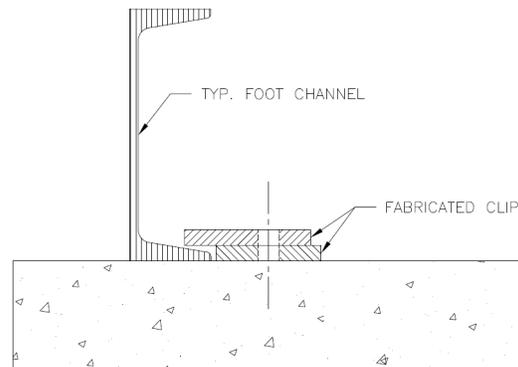
Option 1



Option 2



Option 3



Option 4



IMPORATANT NOTES:

1. Welding on a form can result in distortion of the skin surface. Hamilton Form Company, Ltd cannot be responsible for distortions which result from welding on these forms after they leave our plant, except where welding is done by authorized Hamilton Form Company personnel.

(Skin seams are welded on the back side only, unless otherwise noted)

2. Forms are designed to withstand properly applied external vibration. **NEVER VIBRATE AN EMPTY FORM.** Periodically inspect vibrator mounts for any cracked welds. Also inspect form for cracks in the steel, especially around the vibrator mounts.
3. Proper maintenance of all forming equipment is required for long form life, optimal productivity and to prevent damage to the form. Failure to do so can result in reduced productivity and can damage to the form.



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